

AMENDMENTS TO THE CLAIMS

Claims 1-27 (Cancelled)

Claim 28 (Currently Amended) A manifold ~~system head~~ for separate distribution of two fluids, ~~the manifold system comprising: into and out of the channels in~~

a multi-channel monolithic structure including outer structure walls and inner channel walls defining channel openings of a plurality of channels of said multi-channel monolithic structure, where the said channel openings of said plurality of channels being are spread over an the entire cross-sectional area of said multi-channel monolithic structure, and where said plurality of channels sharing have joint at least a portion of said inner channel walls; and

a manifold head including a first tunnel and a second entry/exit point, wherein said manifold head distributing the two fluids separately into and out of said plurality of channels to effect mass and/or heat transfer between the two fluids,

wherein said first tunnel of said manifold head includes a first tunnel wall having through slots communicating with one or more first gaps of said manifold head,

wherein said second entry/exit point of said manifold head includes a second wall having through slots communicating with one or more second gaps of said manifold head, and

wherein each fluid of the two fluids is fed separately through said manifold head, such that (i) a first fluid of the two fluids is fed through said first tunnel and said through slots communicating with said one or more first gaps to distribute the first fluid into specific channels of said plurality of channels of said multi-channel monolithic structure, (ii) a second fluid of the two fluids is fed through said second entry/exit point and said through slots communicating with said one or more second gaps to distribute the second fluid into specific channels of said plurality

of channels of said multi-channel monolithic structure, and (iii) at least one of said inner channel walls is common between the first fluid and the second fluid as the first fluid and the second fluid are respectively fed through said first tunnel and said second entry/exit point comprises:

—— at least three parallel dividing plates joined together with spacers to form gaps with slots between said plates and

—— end cover plates joined in parallel to said dividing plates where said dividing plates and cover plates have one opening forming a tunnel with slots through said joined plates.

Claim 29 (Currently Amended) ~~The~~[[A]] manifold system head according to claim 28, wherein said manifold head comprises:

three parallel dividing plates joined together by spacers, such that the spacers form gaps with slots between said three parallel dividing plates; and

end cover plates joined in parallel to said three parallel dividing plates,

wherein each of said three parallel dividing plates and each of said end cover plates includes an inner opening, such that the inner openings of said three parallel dividing plates and said end cover plates form said first tunnel of said manifold head extending through said three parallel dividing plates, and

wherein said first tunnel wall includes slots communicating with said one or more first gaps of said manifold head, such that the first fluid enters have at least one hole each forming a tubular space (tunnel) through said joined plates and where said tunnel wall has slots communicating with said one or more first gaps.

Claim 30 (Cancelled)

Claim 31 (Currently Amended) ~~The~~[[A]] ~~manifold system~~ ~~unit~~ according to claim 28-unit, wherein said unit comprises:

~~— a multi-channel monolithic structure where the channel openings are spread over the entire cross-sectional area of said structure and said channels have joint walls,~~

~~wherein said manifold head according to claim 28 which is sealed to at least one face of said multi-channel monolithic structure where said channel openings are located, and~~

~~wherein at least one hole plate having a plurality of holes which is sealed between said manifold head and said at least one face of said multi-channel monolithic structure on said face where the channel openings are.~~

Claim 32 (Currently Amended) ~~The~~[[A]] ~~manifold system~~ ~~unit~~ according to claim 31, wherein said holes ~~of said at least one hole plate are positioned such arranged in such a way that the two fluids can flow from said monolith plurality of channels of said multi-channel monolithic structure to said one or more first gaps and said one or more second gaps of said manifold head~~ and vice versa.

Claim 33 (Currently Amended) ~~The~~[[A]] ~~manifold system~~ ~~unit~~ according to claim 28-30, wherein one or more of said inner channel walls are coated with one or more catalytic active components.

Claim 34 (Currently Amended) ~~The~~[[A]] ~~manifold system~~ ~~unit~~ according to claim 28-30, wherein said channel openings of said plurality of channels are evenly distributed over the entire

cross-sectional area of said multi-channel monolithic monolith structure as in a chessboard pattern.

Claim 35 (Currently Amended) The[[A]] manifold system-unit according to claim 28-30, wherein said inner structure has channel walls of said multi-channel monolithic structure are oriented in at a 45-degrees degree angle with respect to said the outer structure walls.

Claim 36 (Currently Amended) The[[A]] manifold system-unit according to claim 29-30, wherein said three parallel dividing plates are sealed to a hole plate having a plurality of holes.

Claim 37 (Currently Amended) The[[A]] manifold system-unit according to claim 29-30, wherein said three parallel dividing plates are sealed directly to the monolith said inner channel walls of said multi-channel monolithic structure.

Claim 38 (Currently Amended) The[[A]] manifold system-unit according to claim 28-30, wherein said manifold head is sealed to at least one face of the monolith said multi-channel monolithic structure where the said channel openings are located.

Claim 39 (Currently Amended) A manifold stack comprising:
said manifold head according to claim 28; and
two of said multi-channel monolithic structures according to claim 28,
wherein said stack comprises two or more multi-channel monolithic structures where the
said channel openings of said two multi-channel monolithic structures are spread over the entire

~~cross-sectional area of each respective multi-channel monolithic structure of said two multi-channel monolithic structures and said plurality of channels of each respective multi-channel monolithic structure of said two multi-channel monolithic structures have share at least a portion of said joint inner channel walls,~~

~~wherein said at least one manifold head according to claim 28 which is sealed to at least one face of one multi-channel monolithic structure, of said two multi-channel monolithic structures-structure, where said channel openings are located,~~

~~wherein at least one plate with holes-which is sealed between said manifold head and said at least one face of said one multi-channel monolithic structure of said two multi-channel monolithic structures-structure on said side where the channel openings are, and~~

~~wherein said manifold stack includes at least one connector plate or another-other coupling device connecting said manifold head and/or one multi-channel monolithic structure of said two multi-channel monolithic structures to a neighboring manifold head or multi-channel monolithic structures-between units.~~

Claim 40 (Cancelled)

Claim 41 (Currently Amended) ~~A row-of including a plurality of said manifold systems units, wherein said row comprises units according to claim 29-30, wherein a sealing ring and two different types (type A and B) of end covers-are used to connect connect said manifold head of one manifold system of said plurality of manifold systems-unit with said manifold head of a neighboring manifold system of said plurality of manifold systems-another neighboring unit.~~

Claim 42 (Currently Amended) A block, ~~wherein said block comprises~~ comprising a plurality of said rows of said plurality of manifold systems-units according to claim 41-40, each row of said plurality of rows being ~~which are~~ stapled face to face.

Claim 43 (Currently Amended) A reactor for mass and/or heat transfer between the two fluids, ~~the said~~ reactor comprising one or more of said manifold systems ~~of the units~~ according to claim 28-30.

Claim 44 (Currently Amended) A method for mass and/or heat transfer between the two fluids, said method including distributing ~~wherein said the~~ two fluids ~~are distributed~~ through one or more of said manifold systems-units according to claim 28-30.

Claim 45 (Currently Amended) A row of stacks, ~~wherein said row comprises~~ comprising a plurality of said manifold stacks according to claim 39, said plurality of manifold stacks being ~~which are~~ coupled together.

Claim 46 (Currently Amended) A row of stacks, ~~wherein said row comprises~~ comprising a plurality of manifold stacks according to claim 39, wherein a sealing ring and two different types (type A and B) of end covers ~~are used to~~ connect said manifold head of one manifold stack of said plurality of manifold stacks with said manifold head of a neighboring manifold stack of said plurality of manifold stacks ~~another neighboring stack~~.

Claim 47 (New) The manifold system according to claim 29,

wherein said manifold head includes three additional parallel dividing plates joined together by additional spacers, such that the additional spacers form additional gaps with additional slots between said three additional parallel dividing plates,

wherein said manifold head includes additional end cover plates joined in parallel to said three additional parallel dividing plates,

wherein each of said three additional parallel dividing plates and each of said additional end cover plates includes an inner opening, such that the inner openings of said three additional parallel dividing plates and said additional end cover plates form said second entry/exit point of said manifold head extending through said three additional parallel dividing plates, and

wherein said second wall includes slots communicating with said one or more second gaps of said manifold head, such that the second fluid enters said one or more second gaps.

Claim 48 (New) The manifold system according to claim 31, wherein a hole plate or a system of hole plates provides a hole pattern equivalent to a pattern provided by said plurality of channels of said multi-channel monolithic structure.

Claim 49 (New) The manifold system according to claim 29, wherein said second entry/exit point is formed by additional dividing plates for the second fluid, each of said additional dividing plates not having a slot formed in an inner opening thereof, and each of said additional dividing plates having a slot formed at an intended top of said manifold head to allow entry of the second fluid.

Claim 50 (New) The manifold system according to claim 28, wherein said second entry/exit point is a second tunnel and said second wall is a second tunnel wall.